# Selected Abstracts from the September Issue of the European Journal of Vascular and Endovascular Surgery

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### The Impact of Gender on In-hospital Outcomes after Carotid Endarterectomy or Stenting

Bisdas T., Egorova N., Moskowitz A.J., Sosunov E.A., Marin M.L., Faries P.L., Vouyouka A.G. Eur J Vasc Endovasc Surg 2012;44:244-50.

**Aim:** We sought to better define the impact of sex on 'in-hospital outcomes' after carotid endarterectomy (CEA) or stenting (CAS).

**Methods:** Hospital discharge databases for all carotid interventions obtained from the New York State (NYS) Department of Health, Statewide Planning and Research Cooperative System between 2000 and 2009 (29,917 women, 39,771 men) were analysed. Mortality, stroke and composite event (stroke/death) were compared between procedures after matching of patients by propensity score. Acute myocardial infarction (AMI) was our secondary 'end' point.

**Results:** More than 90% of patients in both sexes were asymptomatic (27,439 women and 36,295 men). Compared to men, asymptomatic women experienced more strokes after CEA (women: 1.38%, men: 1.16%, $P = 0.03$) and higher AMI rates after both procedures (CEA; women: 0.75%, men: 0.51%, $P = 0.0009$, CAS; women: 0.96%, men: 0.28%, $P = 0.01$). Between procedures, symptomatic women undergoing CAS showed higher rates of mortality (CAS: 4.19%, CEA: 0.47%, $P = 0.01$) and combined (stroke/mortality) events (CAS: 12.09%, CEA: 6.05%, $P = 0.02$). In all other cohorts, no statistically significant difference was found between the procedures.

**Conclusions:** Compared to CEA, CAS led to inferior in-hospital outcomes only in symptomatic women in the last decade in NYS. Men and asymptomatic women showed comparable outcomes after both procedures, whereas asymptomatic females were more prone to AMI after both interventions. These sex-associated differences should be taken into account for the treatment of carotid artery disease.

### No Benefit from Carotid Intervention in Fatal Stroke Prevention for >80-Year-old Patients

De Rango P., Lenti M., Simonte G., Cieri E., Giordano G., Caso V., Isernia G., Cao P. Eur J Vasc Endovasc Surg 2012;44:252-9.

**Background:** Invasive management of patients ≥80 years of age with carotid stenosis may be questionable. The higher likelihood of stroke needs to be balanced with the increased perioperative risk and the reduced life expectancy of this ageing population. The purpose of this study was to evaluate the clinical relevance of carotid stenosis revascularisation in octogenarians.

**Methods:** All patients ≥80 years of age who received carotid revascularisation in 2001–2010 were reviewed for perioperative and 5-year outcomes. The experience was comprehensive of carotid endarterectomy (CEA) and carotid stenting (CAS) performed during the training frame when age was not a contraindication for this procedure. Mortality rates were compared to those of octogenarians of the same geographical territory according to all-cause and stroke-related mortality national statistics datasets.

**Results:** A total of 348 procedures performed in ≥80-year-old patients (272 males) were reviewed: 162 (46.6%) were by CAS and 169 (48.6%) were for symptomatic disease. Perioperative stroke/death rate was 5.5% and was non-significantly higher for symptomatic disease (7.1% vs. 3.9% asymptomatic; $p = 0.24$), after CAS (6.2% vs. 4.8% CEA; $p = 0.64$) and in females (6.6% vs. 5.1% males; $p = 0.57$). At median follow-up of 36.18 months, 95 deaths and 21 new ischaemic strokes (12 fatal) occurred with 5-year Kaplan–Meier freedom from stroke of 84.8% (78.7%, symptomatic vs. 90.3% asymptomatic; $p = 0.003$). According to national datasets, in 80–85-year-old resident population 5-year mortality was 29.9% (23.4% females, 40.6% males) and ischaemic stroke-related mortality was 14.9% (16.8% females, 13.0% males). Corresponding figures from treated population showed a 5-year mortality of 49.4%, higher in males (39.5% females, 52.5% males) and ischaemic stroke-related mortality of 20.2%, higher in females (40.0% females, 15.6% males). Comparing data from the study population with residents' figures, ischaemic stroke-related mortality hazard was significantly higher in the study females: odds ratio (OR) 3.2, 95% confidence interval (CI) 1.16–9.17; $p = 0.029$ (for males: OR 0.97, 95%CI 0.89–1.10; $p = 0.99$).

**Conclusions:** Despite perioperative stroke/death risks being lower compared with CAS, the benefit of surgical carotid revascularisation in old patients remains controversial due to limited life expectancy and high fatality of stroke in this ageing population. Invasive treatment of carotid stenosis may not be warranted in most patients ≥80 years of age with carotid stenosis, especially when female and asymptomatic.

### AAA with a Challenging Neck: Early Outcomes Using the Endurant Stent-Graft System

Setacci F., Sirignano P., de Donato G., Chisci E., Iacoponi F., Galzerano G., Palasciano G., Cappelli A., Setacci C. Eur J Vasc Endovasc Surg 2012;44:274-9.

**Objectives:** The efficacy and safety of endovascular aneurysm repair is disputable in aneurysms with a short, angulated, wide, conical, or thrombus-lined neck making a reliable seal difficult to achieve. The influence of a challenging neck on early results using the Endurant stent-graft system in high risk patients was investigated.

**Matherials and methods:** A retrospective study conducted on a prospectively compiled database of 72 elective patients with challenging neck treated with the Endurant system (Endurant Stent Graft, Medtronic AVE, Santa Rosa, CA, USA). These patients were compared to a control group ($n = 65$) without significant neck problems. Endpoints were early technical and clinical success, deployment accuracy and differences in operative details at one month follow-up. Data are reported as mean and standard deviation or as absolute frequency and percentage (%). Normality distribution and homogeneity of variances were tested by Shapiro–Wilks and Levene tests, respectively. Inter-group comparisons for each variable were made by *t*-test or $\chi 2$-test or Fisher exact test. A $p < 0.05$ was considered statistically significant.

**Results:** Mean age was 76.12 years; 76.6% were males. Risk factors and pre-operative variables did not differ significantly between the two groups. Mean neck length was 10.56 mm in patients with challenging anatomies and 22.85 mm in controls. Patients with a challenging neck differed significantly ($p < 0.001$) from controls in terms of mean infrarenal (37.67° vs. 20.12°) and suprarenal angle (19.63° vs. 15.57°); 82% of patients with a challenging neck were ASA III/IV (vs. 86%). Technical success was 100%, with four unplanned proximal extension in challenging group. No type I endoleaks or aneurysm-related deaths occurred in either group; major complications were 1.54% vs. 1.39% ($p = 0.942$). Operative details were similar in both groups.

**Conclusion:** Treatment with the Endurant stent-graft is technically feasible and safe, yielding satisfactory results even in challenging anatomies. Medium- and long-term data are needed to verify durability, but early results are promising.

### How Secure is the Anastomosis between the Proximal and Distal Body Components of a Fenestrated Stent-Graft?

Scurr J.R.H., McWilliams R.G., How T.V. Eur J Vasc Endovasc Surg 2012;44:281-6.

**Objectives:** To examine the longitudinal migratory force required to cause disconnection of the bifurcated distal body component from the tubular proximal body of a fenestrated stent-graft.

**Methods:** Using a previously reported mathematical model distal distraction forces were calculated prior to performing in vitro pullout testing. The top end of the proximal body and the iliac limbs of the distal body were attached to the grips of a tensile tester via plastic sealing plugs and pneumatic clamps. Channels within the plugs allowed pressurisation of the inside of the stent-graft. Pullout tests were conducted in the vertical plane. Force and displacement data were recorded and tests repeated 8 times at room temperature with the stent-grafts either dry or wet and unpressurized, at 100 mmHg or at 120 mmHg.

**Results:** The median maximum pullout force was 2.9 N (2.6–4.1) when dry, 3.9 N (3.5–5.4) when wet and unpressurized, 6.3 N (4.8–8.3) when wet and pressurized at 100 mmHg and 6.5 N (4.8–7.2) when wet and pressurized at 120 mmHg. There was a significant difference between pressurized and unpressurized conditions ($P < 0.01$).

**Conclusions:** The force required to distract the distal bifurcated component of a fenestrated stent graft is much lower than the reported proximal fixation strength of both a standard and fenestrated Zenith stent graft. Although this helps protect the fenestrated proximal body from the effects of longitudinal migration forces in vivo the current strength of the body overlap zone may actually be unnecessarily weak and requires careful surveillance in follow up.